

WHAT IS CLAIMED:

1. A method for forming a channel plate, comprising:
 - (a) abrading at least one channel in a substrate;
 - (b) heating the substrate to a temperature in the range between an annealing point and a softening point of the substrate; and
 - (c) cooling the substrate.
2. The method of claim 1, wherein the substrate is heated in an environment containing a mixture of nitrogen with water vapor.
3. The method of claim 2, wherein the percentage of water vapor in the environment in which the substrate is heated is in the range of 10% to 25%, but about 5% below the saturation point.
4. The method of claim 1, wherein the substrate is heated in an environment containing air.
5. The method of claim 1, wherein the substrate is heated in an environment containing nitrogen gas.
6. The method of claim 1, wherein the substrate comprises ceramic.
7. The method of claim 1, wherein the substrate comprises glass.
8. The method of claim 7, wherein the glass type is Corning®1737 Glass.
9. The method of claim 8, wherein the substrate is heated to a temperature in the range of about 721°C to 975°C.

10. The method of claim 9, wherein a maximum heating temperature is maintained for at least ten minutes.
11. The method of claim 7, wherein the glass type is Pyrex® Brand 7740 Glass.
12. The method of claim 11, wherein the substrate is heated to a temperature in the range of about 560°C to 821°C.
13. The method of claim 12, wherein a maximum heating temperature is maintained for at least ten minutes.
14. The method of claim 1, wherein the substrate is heated to a temperature that heals micro cracks in the substrate while minimizing sagging of macro features of the substrate.
15. The method of claim 1, wherein the substrate is heated to a temperature that smoothes the surface of the substrate without disturbing macro features of the substrate.
16. The method of claim 1, wherein the substrate is heated for a period of time in the range of approximately ten to one hundred twenty minutes.
17. The method of claim 1, wherein the substrate is oriented with the at least one channel facing up when heated.
18. The method of claim 1, wherein the substrate is oriented with the at least one channel facing down when heated.
19. The method of claim 1, wherein the substrate is supported on a polished, low porosity surface during said heating.

20. The method of claim 1, wherein the substrate is heated in a furnace wherein the temperature is ramped from 25°C at a rate of about 20°C to 40°C per minute.
21. The method of claim 20, wherein the substrate is cooled to 25°C at a ramp rate of about 20°C to 40°C per minute.
22. A method for healing cracks in a switch substrate, comprising:
 - (a) heating the switch substrate to a temperature in the range between an annealing point and a softening point of the substrate; and
 - (b) cooling the substrate.
23. The method of claim 22, wherein the substrate is heated in an environment containing a mixture of nitrogen with water vapor.
24. The method of claim 23, wherein the percentage of water vapor in the environment in which the substrate is heated is in the range of about 10% to 25%, but about 5% below the saturation point.
25. A switch, produced by:
 - (a) abrading at least one channel in a first substrate;
 - (b) heating the first substrate until micro cracks in the at least one channel are healed;
 - (c) cooling the first substrate;
 - (d) depositing seal belt metal layers on the at least one channel in the first substrate; and
 - (e) aligning the at least one channel formed in the first substrate with at least one feature on a second substrate, and sealing at least a switching fluid between the first substrate and the second substrate.
26. The method of claim 25, wherein the first substrate is heated in an environment containing a mixture of nitrogen with water vapor.

27. The method of claim 26, wherein the percentage of water vapor in the environment in which the substrate is heated is in the range of about 10% to 25%, but about 5% below the saturation point.
28. The method of claim 25, wherein the step of abrading comprises;
 - (a) depositing a photoresist on the first substrate;
 - (b) patterning at least one feature on the photoresist;
 - (c) sandblasting at least one channel in the first substrate whereby micro cracks are formed in the at least one channel; and
 - (d) removing unwanted portions of the photoresist.